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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------------|------------------|
| 10/004,424 | 12/06/2001 | Per Andersson | 3787-0109P | 8207 |
| 2292 | 7590 | 06/25/2004 | | |
| BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747 | | | EXAMINER LUDLOW, JAN M | |
| | | | ART UNIT | PAPER NUMBER |

1743

DATE MAILED: 06/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|--|--|
| Office Action Summary | Application No. 10/004,424 | Applicant(s) ANDERSSON ET AL | |
| | Examiner Jan M. Ludlow | Art Unit 1743 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>3/3</u> . | 6) <input type="checkbox"/> Other: ____ |

1. Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 19 are unclear because while the disclosure indicates that an object of the invention is to dispense to the disc while the disc is spinning (p. 3, lines 25-30), the claims do not clearly recite this feature.

The scope of claim 1 is unclear because it is unclear whether or not the microchannel and inlet must be present to satisfy the claim. In part b) the inlet port is recited rather than the target area, which seems to imply the inlet port must be present, whereas part d) refers to the target area.

Claim 2 is unclear because it is unclear whether all of the parameters must be programmed, or only one or more of the parameters. Further, "the dispensing signal" and "the dispenser orifice" lack antecedence.

Claim 3/1 is unclear because it is unclear because it makes reference to the parameters of claim 2, but claim 3 does not necessarily depend from claim 2 ("the method of claim 1...."). See also claim 17, which refers to the parameters of claim 2, but does not depend from claim 2.

Claim 7/6 is unclear because "the microcavity" lacks antecedence when claim 7 depends from claim 6.

Claim 8 lacks clear antecedence—how do "a sample inlet port" and "an inlet port" relate to "an inlet port" in claim 1, line 3?

In claim 9, what does "said at least one liquid" refer to?

In claims 10, 11, 12 and 17, "the dispensing signal" lacks antecedence.

In claim 18, "the dispenser arrangement" lacks antecedence.

Claim 20 is unclear as a whole—it appears to depend from both claims 19 and 2, and recites the "features of the arrangement" defined in claim 2, but no structural features of any arrangement are recited in claim 2.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
3. Claims 1-2, 5, 7/5, 10-20 rejected under 35 U.S.C. 102(e) as being anticipated by Hubbard.
4. Hubbard teaches a microfluidic rotatable disc and moveable dispenser for supplying fluids to inlet ports on the disc. Volumetric flow can be monitored and controlled (col. 9; col. 14, lines 44-50, col. 22, lines 25-40). Marks on the disk (instant trigger mark) and a fixed trigger position outside the disk may be used to identify positioning of the disc and control movement of the dispenser to the dispensing positions (cols. 13-14). Known indexing devices may be used for rotor rotation and monitoring. Piezoelectric dispensers may be used (col. 12, line 27). Affinity packings can be provided (col. 19, lines 35-50). See, e.g., col. 3, lines 1-5, 20-25, 40-45; col. 4, lines 35-40; bridge cols. 4-5; col. 6, lines 1-20, 35-40, 60-65; col. 8, lines 50-55; col. 9, lines 40-60; col. 10, lines 23-38, col. 12, lines 7-30. With respect to claim 2, the parameters are inherently necessary for operation of the device.

5. Claims 3-4, 6-9 rejected under 35 U.S.C. 103(a) as being unpatentable over Hubbard as applied to claims 1-2, 5, 7/5, 12-20 above, and further in view of Sheppard.

Hubbard fails to teach applying a gradient to elute substances bound to the affinity packing.

Sheppard teaches a microfluidic device with an affinity packing. Conventional elution fluids can be applied to recover compounds bound to the affinity packing (col. 18, lines 45-51).

It would have been obvious to one of ordinary skill to provide an elution gradient in the method of Hubbard in order to elute compounds using conventional eluents of appropriate ionic strength to elute bound constituents from an affinity packing bed in a microfluidic device as taught by Sheppard.

6. Claims 1-2, 10-14, 16-20 rejected under 35 U.S.C. 103(a) as being unpatentable over Zaffaroni in view of Hubbard.

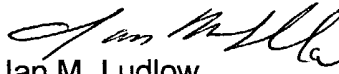
7. Zaffaroni teaches a method and apparatus for depositing fluids on a rotating disk. Plural capillaries and piezoelectrics can be used. The deposition can be performed while the disk is moving. Encoders are provided for positioning precision. Mark(s) on the disk and readers on the dispenser can be used to precisely position the dispenser, but other known methods for accurate positioning can be used. When the deposition head is properly positioned relative to the marks on the disk, liquid is dispensed. Operation is under computer control. See, e.g., col. 9, lines 38-60; col. 13, lines 15-44 and 60-67; col. 17, lines 1-10, 54-67; col. 18, lines 5-10, 59; col. 21, lines 50-59; col. 22, lines 5-15; col. 24, lines 15-25, 40-52; col. 25, lines 28-32, 49-55; and elsewhere.

8. Zaffaroni fails to teach a fixed trigger position outside the disk.
9. Hubbard teaches a device similar to that of Zaffaroni. As an alternative to marks on the disk and a reader on the dispensing head, marks on the disk (instant trigger mark) and a fixed trigger position outside the disk may be used (cols. 13-14).
10. It would have been obvious to use the fixed trigger of Hubbard in the device of Zaffaroni in order to provide an alternative known locating method and means as suggested by Zaffaroni, the suitability as an alternative being taught by Hubbard. With respect to claim 2, the parameters are inherently necessary for operation of the device.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jan M. Ludlow whose telephone number is (571) 272-1260. The examiner can normally be reached on Monday-Thursday, 11:30 am - 8:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill A. Warden can be reached on (571) 272-1267. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jan M. Ludlow
Primary Examiner
Art Unit 1743

Jml
June 23, 2004